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ABSTRACT

A survey of teachers in an elementary school building and a literature review indicated that the causes of the lack of individualizing student learning were related to class size, poor leadership, teacher training, and poorly developed learning style instruments. A practicum was designed for classroom teachers to recognize differential learning styles and incorporate them into their repertoire of teaching. This practicum involved 31 sixth grade students and included five behavioral objectives: (1) improved study habits, attitudes, and behavior; (2) employment of four distinct teaching methods; (3) administration of the Dunn, Dunn, and Price Learning Style Inventory self-reporting instrument to 27 elementary teachers; (4) in-service on learning styles for all elementary teachers; and (5) parental review of child's learning style inventory results. Outcomes of the practicum showed improved work habits in 27 students, improved classroom attitudes in 26 students, and improved classroom behavior in 10 students. The students and their classroom teacher found the four group teaching methods that were introduced and demonstrated to them to be an excellent experience. (LLL)

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USING INDIVIDUAL LEARNING STYLE INVENTORIES AND GROUP TEACHING METHODS IN A SIXTH GRADE CLASSROOM

Lloyd J. Campbell
Cluster 35

A Practicum I Report Presented to the ED.D. Program
in Early and Middle Childhood
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education

NOVA UNIVERSITY
1990

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PRACTICUM APPROVAL SHEET

This practicum took place as described.

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This practicum report was submitted by Lloyd J. Campbell under the direction of the adviser listed below. It was submitted to the Ed. D. Program in Early and Middle Childhood and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Nova University.

Approved:

June 10, 1991
Date of Final Approval of Report

Holly Peterson Ph.D.
Holly Peterson Ph.D., Adviser

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ABSTRACT

Using Individual Learning Styles Inventories and Group Teaching Methods in a Sixth Grade Classroom. Campbell, Lloyd., 1991: Practicum I Report, Nova University, Ed.D. Program in Early and Middle Childhood. Descriptors: Cognitive Learning / Learning Strategies / Learning Processes / Learning Modalities / Learning Motivation / Learning Theories /

The practicum addressed the problem that classroom teachers lack diagnostic skills to identify and teach to their student's learning styles. In a survey of teachers in this elementary building and in a review of the literature the causes of the lack of individualizing student learning were related to class size, poor leadership, teacher training, and poorly developed learning style instruments.

The writer's goals were to have the classroom teacher give the Dunn, Dunn, and Price (1987) individual learning style inventory to 31 sixth grade students. The classroom teacher used the four group teaching methods as proposed by Dunn and Dunn (1978) to teach to their learning styles.

Based on the individual learning style inventory's results, the parents of the 31 students were consulted and given recommendations for home implementation.

To stimulate further interest in learning style concepts 12 of 27 teachers volunteered to take the adult version of the inventory.

The expected outcomes of the practicum were 27 of 31 students improved work habits, 26 of 31 students improved classroom attitudes, and 10 of 31 students improved classroom behavior. The students and their classroom teacher found the four group teaching methods introduced and demonstrated to be an excellent experience.

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CHAPTER I

INTRODUCTION

Description of Work Setting and Community

The practicum setting, the county's smallest school district, a constituent of the county's ISD (Intermediate School District), is located in the suburbs about 12 miles from the center of a large industrial midwestern city. The village township has its own police and fire departments. Many of the community's residents which number slightly more than four thousand are employed either in this industry or in smaller related factories that make key parts for the main manufacturers. Some of them have obtained work in other job settings which pay less money and have fewer fringe benefits. Others are victims of unemployment. A few families have moved out of the community and even the state to find new beginnings. The socioeconomic position of the community setting is lower middle class to lower class families.

The school district is located in two sprawling first floor buildings that are separate yet connected by a corridor. Attending kindergarten through the 12th grades are 894 students. The smaller of the two buildings

facilitates the 494 elementary students who attend kindergarten through the sixth grade. The larger building houses the junior and senior high students who number 400 students. This figure fluctuates with monthly drop-outs and new enrollments.

The school district is made up of a superintendent, two principals, and 47 teachers. There are a special education coordinator, five teacher consultants, two remedial reading teachers, one speech and language pathologist, a music teacher, two physical education teachers, one high school counselor, and two school social workers. The latter are itinerants who have been contracted from the county's ISD (Intermediate school District).

Writer's Work Setting and Role

The writer is employed as a school social worker. The work setting is an intermediate school district office which is the primary regional service agency that links public schools, community, the private sector, and public agencies in order to improve education and implement learning for all citizens (GISD, 1987). The writer joined the school system in 1968, as a social worker and for fourteen years was the social work coordinator. The coordinator's responsibilities included making district assignments and assisting in assignment problems.

The school social worker's role is eclectic as it addresses miscellaneous assignments that involve the

students, teachers, administrators, parents and/or guardians. While consultation is the major function of the school social worker service, they are often members of the IEPC (Individual Educational Placement Committee). They evaluate referred students who are suspected as being educationally emotionally handicapped. Applicable to the evaluation process, school social workers consult with school personnel including teachers, teacher aides, administrators, and ancillary staff members. The consultation takes them into the classroom for observations of the student's behavior and interactions with their teacher. It is their responsibility to interview the referred students and their parent(s) and/or guardian(s); to complete a written report; and attend the MET (Multidisciplinary Evaluation Team) and IEPC (Individual Education Planning Committee) meetings.

When the IEPC appends school social worker service to a student's IEP (Individual Education Plan), it is the school social worker's responsibility to provide consultative service to the teachers. The school social worker links home and school through parental contacts and provides supportive treatment at school when appropriate. This may involve working with the student individually or in a support group. The social worker often focuses on the parents and their needs to help improve family functioning.

The writer along with a co-worker were fortunate to

receive from a funded proposal that they drafted and submitted. This provided group treatment to defiant, oppositional children for the 1990-1991 school year. This grant allowed nonspecial education students to be seen in the groups as well as special education students.
Both school social workers, the writer being one of the two, were assigned to the district one day per week.

CHAPTER II

STUDY OF THE PROBLEM

Problem Description

In this district, the classroom teachers either did not know that there are different styles of learning which may acutely affect and limit their students' school success or they lacked the diagnostic skills to identify how their students' learn. The assumption was made that even if the teachers had been exposed to the concept of students having their own individual learning style they, then, did not seem to understand the concepts. They did not identify different educational strategies for problem solving nor think about their own strategies that could afford students improved learning (Butler, 1985; Gregorc, 1985b; Dunn & Dunn, 1987).

Many educators innately influence and compel students to adapt to their own learning styles. The educators did not appear to understand other styles of thinking or learning (Titus, Bergandi, & Shryock, 1990). The manner in which the teacher presents the material to be learned may actually obstruct some students' academic achievement (Guild, 1989; Rosenholtz, 1989).

The content, teaching materials, and presentation are usually based on the teacher's own personal style of learning. Students who are on the same frequency as their teachers concentrate on school related activities and seem to increase achievement (Wuthrick, 1990). Frieberg (1989), in relation to learning styles, wonders why some teachers are more effective than others and why some grades produce greater student achievement and quality. Many teachers simply do not understand that learning styles involve problem solving and subsequent thinking strategies that enhance maximal learning. With improved understanding of how students learn differently from each other, Guild (1989) contends that increased learning can take place when teachers introduce diverse teaching strategies that complement the individual strengths of their students.

In some situations specific curricula may be mandated by the State and/or school district which may actually be outdated and irrelevant as well as inapplicable to the student's instructional, developmental and/or success level. Students who are unable to synthesize or apply the material as presented perform less satisfactorily (Guild, 1989; Rosenholtz, 1989). Thus, the state of the problem is that student performance and achievement are affected because teachers have limited skills or resources in assessing their own learning styles and those of their students.

Problem Documentation

The school district was targeted because of the teachers' unfamiliarity with different styles and strategies of learning. The principal was unaware whether or not any of the teachers in the building had ever taught from a teaching philosophy advocating different learning styles for different students.

After the presentation of a mini-inservice on different learning styles given on September 20, 1990, the presenter who is the writer complied the collected data from a checklist and learned that all 27 teachers who seemed to be aware that there are different learning strategies could not recall any theorist or test developer nor identify a learning style evaluation instrument. None could any recall hearing about such leading experts as Gregorc (1985a) Butler (1985) Dunn and Dunn (1987), or Carbo (1987b). Eighty percent did not know that the auditory and visual modalities affecting learning are involved. Some of the teachers remembered seeing articles about learning styles in their professional journals but did not seem to pursue it further. None had incorporated learning styles into their teaching. In their last year of college, two student teachers who attend prominent universities, recounted that they had received an overview on the concepts of learning styles.

An ISD (Intermediate School District) consultant for the Gifted and Talented, is well acquainted with the concept of different learning styles. Of the many learning styles'

theories, the consultant is most familiar with the work of Gregoric (1982) and Butler (1985). She has presented different learning styles workshops to the more progressive school districts that have begun some means of implementation.

With an approximate 30,000 student population in the largest constituent district of the ISD, the writer interviewed a staff development director who was also familiar with different student learning styles. The director is a strong advocate of the concept of different learning styles and its implication for educational reform. She anticipates the district's major structural changes in its educational delivery system will be to endorse and implement the learning styles philosophy. For teachers, this will involve identifying the learning styles of their students, as well as being able to identify their own learning styles, and to individualize each student's educational program to match their learning style. She sited only one other district in the county that has started to integrate on a school-wide basis the learning styles' concept into its teaching.

Causative Analysis

The causes of the problem of individualizing student learning are multi-faceted. According to Oakes (1989), large class size, particularly in the elementary grades, has a profound effect on individualizing student learning.

Schultz (1989) discovered from his research that kindergarten through 2nd grade students had higher achievement scores with class size reduction to 15 or less pupils per class room. The teachers in his study reported that more students could master the curriculum better because it allowed the teachers more time to help the students who needed immediate remedial help. According to Robinson (1990), the students from grades kindergarten through 3rd were scoring higher on reading and mathematic achievement tests when class size was limited to 22 students. He debated that it is the teaching methods of instruction, the subject areas themselves as well as the personalities of the students and teachers that affect academic achievement gains and that small class size in and of itself is merely secondary. Robinson (1990) cited other research which indicated that smaller class size has only limited effects on achievement when compared to other less costly changes.

Poor administrative leadership and/or lack of support denies children their right to individualized instruction. Administrators seem to concentrate their energies on being good managers rather then good leaders. When there is more negative publicity over an administrator mismanaging an athletic program than mismanaging an instructional program, one wonders where the school educational priorities lay. The necessary cooperation between administrators and

teaching personnel on defining education goals and designing school policies for schools seems to be amiss. Glickman (1990) and Pink (1990) believe that stress, frustration, and job burn-out are accelerated by the poor communication system between teachers and administrators. A system to monitor input and feedback between the staff and administrators is needed.

Inadequate teacher training has failed to emphasize the students' need for individualized learning. The various learning styles are not addressed. Most authorities such as Dunn and Dunn (1987), Carbo (1987a), and Butler (1985) believe that learning problems are the result of failing to individualize the student's method of learning. There are concerns, for example, that teacher training is too short and that their general knowledge base is not expansive enough. The writer feels that teacher training does not have enough psychology course work. Teachers receive only limited classes in child development and do not understand the cognitive development of children. Highly applicable, teachers must acquire this essential knowledge base in order to integrate and relate it into their classroom practice. Educators seem to place research, evaluation, development, and practice into separate boxes rather than synthesize their inter-relatedness (Children's Defense Fund, 1990).

According to Curry (1990) too many learning style inventories suffer from weaknesses in reliability and validity of measurements. Butler (1990) believes that most,

if not all, learning style inventories are poorly validated and measure only the surface depth of cognitive learning rather than encompassing all areas of learning. She maintains that the perfect inventory encompasses all areas of learning which include the cognitive, psychological, affective and physical environments of the learning channels. Jenkins (1990) stated the same concern that cognitive levels are the most frequently missed sections on the learning style instruments.

Claxton and Murrell (1987) expressed their concern over the inadequacies of the current measurements to evaluate the styles of the existing learning styles models. They predicted that competent instruments will be designed in order to meet the students' individual educational needs. This, they foresee, will become a major area for future research.

Relationship of the Problem to the Literature

The evaluation of individual differences and styles of learning can be traced back to the 1900's when German psychologists were observing cognitive styles of functioning. Jung (1911) a prominent psychologist, is one of the first to publish research on "psychological types". In the 1930's, another noted psychologist began to write using the word "style" in his writings. Later, in 1961, he defined style as consistent patterns of human behavior (Allport, 1961).

Lowenfeld (1945) identifies individuals who learn best by using their senses, such as sight and touch, as being "haptic type" learners. Such individuals may learn better using their visual instead of auditory modalities or visa-versa or mixed i.e. utilizing a sensory combination.

Klein (1951) distinguished "levelers" as those who retreat from objects tending to be nonaggressive and avoiding objects. He contrasted these individuals from the "sharpeners" who tend to be aggressive, even to the point of becoming combative, in their demand of autonomy and self-attainment. One concludes that the differences in personality, temperament, and behavior among students affects how they learn.

Tyler (1965) felt that the research on individual differences gradually diminished in the 1950's with the increased administration of intelligence testing that came to be considered more highly predictable of the student's learning and achievement potentials. Although widely used, she reported that the Students' Perceptual Sensitivities Test was statistically disappointing because of its insufficient relationship to the students' achievement. Dunn and Dunn (1975) reported that educators either did not know or just ignored the earlier research on cognitive styles. At that time, they cited that educators were mainly interested in programs rather than individual differences. Bloom's (1956) taxonomy of education writings clarifies

thinking on levels which are related to style. Gregorc (1982), a noteworthy author on adult learning styles, reported that during the 1960's he observed that educators were beginning to draw from the field of psychology to once again learn more about individual differences.

While many educational researchers and curriculum writers are aware of the different learning styles, few school districts have organized and incorporated the theories of how the mind works and how learning styles could direct teachers and students toward optimal performance. Estahani (1989) wrote that learning styles are innately acquired and are not influenced by a person's culture or gender. Performance, according to Brophy (1987), should be based on activities rather than supported by standard criteria. Finn (1990) appeals to today's educators to become aware of different learning styles and to incorporate them into their teaching strategies. He further points out that any educational measurement of success should not be an identical set of outcomes.

Through inservices for continuing professional development, some schools have begun to introduce learning styles as a state-of-the-art topic. As anticipated by Neve (1985), the teachers who begin using learning styles and brain-based learning soon reject teacher-dominated activities and begin favoring more student-initiated plans. Both Guskey (1990) and Pink (1990) have cited program limitations with the current teacher inservice programming

because they lack depth and they in additional fail to promote and describe the relationship between existing strategies and new approaches. After inservices, there is typically little follow-up if any with the staff relating to the training content and its classroom application (Abbott-Shin, 1990; Guskey, 1990). In key leadership roles, they are in a position to encourage teaching strategies that complement student learning styles which promotes individualize learning (Glickman, 1990). Unfortunately the needed support from them too often is sadly lacking.

The elementary school which was flagged for the practicum has a teaching staff unfamiliar with the concept that there are different styles of learning. Since students do not learn alike, it is important that the teaching style matches the individual student's learning style. The writer believes that when teachers implement learning style variance in their classes, it not only increases student motivation and creativity but, it reduces student failure as well.

Educators committed to helping children be all they can be want to help students learn to grow in their own way and at their own rate. While educators are aware of the connection between staff development and the improvement of the education delivery system, there seem to be many barriers which inhibit implementation process toward educational change and subsequent improved teacher effectiveness in the schools. While designing a curricula

to allow individual differences is challenging, Gregorc (1982), Butler (1985), Dunn & Dunn (1987), and Dunn (1990) have attempted to simplify the learning style's diagnostic procedures which they hope will encourage more teachers to identify their student's learning styles. Finn (1990) agrees that administrators should persuade teachers to use teaching strategies that complement their student's learning style so as to maximize their learning. The implementation of almost any activity is doomed to failure when staff development does not provide sufficient awareness. When teachers and administrators are not allowed the time to make transitions, the implementation of a warranted program is doomed to fail. Unless teachers are given specific guidelines on how to adapt to new and improved teaching methodologies that are based upon research, very little will change (Jarrell, 1989; Oakes, 1989; Fladen & Klinzing, 1990). Improvements through staff development are never very successful unless the required changes are administratively directed and followed through with further supervision (Oakes, 1989; Abbott-Shin, 1990).

What is new to education must be shared by better methods. Marzano, Pickewey, & Brandt (1990) suggested that educators build a framework to integrate new information and blend new methods together. There must be a five-to-six year commitment involving planned phases to insure change rather than staff inservices as Arrendondo and Block (1990) referred to as the bandwagon approach. Overly specific

rules and mandated teaching prescriptions run against professional practices that were known to be successful (Rosenholtz, 1989). Smith (1989) criticized teacher training feeling that colleges are inadequate at preparing teachers to teach. He felt that effective teacher training must begin at the university level and that colleges need to revamp their curricula. There must be incentives to convince colleges to raise the quality of teacher training (Children Defense Fund, 1990).

In summary, the literature review traced the development of individual styles of learning back to the 1900's. Jung (1911), Lowenfeld (1945), Klein (1951), and Dunn and Dunn (1975) were all instrumental in pioneering concepts around this area. Many school districts have attempted to deal with strategies of styles of learning through in-services but these methods have little depth or follow through for classroom application. When there is sufficient time allowed for transition, new concepts can successfully be implemented for a preferable educational delivery system that aims toward improved teacher effectiveness and greater student achievement.

CHAPTER III

ANTICIPATED OUTCOMES AND EVALUATION INSTRUMENTS

Goals and Expectations

For students to maximize their learning, the practicum's goals were for the teachers to understand the concepts of learning styles, become proficient to administer assessment instruments, and incorporate the learning styles' concept into their teaching. The writer emphasized the need for teachers to become exposed to the concept of individual learning styles and to recognize the importance of customizing teaching strategies to fit students' learning patterns.

The practicum was designed for the classroom teacher and her student teacher to recognize differential learning styles and incorporate them into their repertoire of teaching. The teachers were to learn to accurately assess their students' learning styles by following a sequential order in the specific evaluative steps.

Behavioral Objectives

There were five behavioral objectives. All 31 sixth grade students were to exhibit improved study habits, attitudes, and behaviors in the group teaching and classroom

settings was the first behavioral objective. The second involved the classroom teacher dividing her 31 sixth grade students into groups of six with five groups of five students and one group of six students. Of the group teaching methods, the teacher was to employ all four methods as described by Dunn and Dunn, (1975) which enhances and supports the learning styles methods as well as improves classroom instruction for all of the students. The third objective was to administer the Dunn, Dunn, and Price (1987) Learning Style Inventory (PEPS) self-reporting instrument to all 27 elementary teachers. This was voluntary and not required. In order to expose teachers to learning style data the most stimulating exercise was for each teacher to take the adult inventory. The fourth objective involved a follow-up mini-inservice on learning styles for all elementary teachers. It was conducted to summarize the practicum experiences in the classroom and to stimulate an increased interest in the learning style concept. Contacting all of the students' parents to review their child's learning style inventory results also presented the opportunity to encourage and direct the parent to accommodate for their child's learning styles in the home setting was the fifth objective.

Measurement of Objectives

To measure whether the first objective was addressed the writer recorded the written descriptions of each

student's study habits, attitudes and behaviors as documented by his observations in a journal. It also included the teacher's anecdotal notes. By synthesizing and comparing the accrued data, the writer's analysis concluded whether the students' study habits, attitudes, and behaviors improved. A checklist, (see Appendix A), of the writer's own design was utilized as the measuring method to determine if the goals and objectives were successful.

For the second objective the writer made at least eight observations during the implementation phase. A checklist found in Appendix B was designed by the writer to be used as an evaluative or measuring method to determine whether the goal and the second objective was addressed.

The third objective involved all 27 teachers taking the Productivity Environmental Preference Survey. The authors of this instrument described 21 different elements of four basic stimuli affecting an individual's ability to absorb and to retain information. The four basic stimuli were environmental, emotional, sociological, and physical. There were 100 questions given using a Likert Scale. This gave the teachers valuable personal style information as well as their teaching styles. The completed test was sent to Price Systems in Lawrence, Kansas for computer scoring. The writer reviewed the results with each individual teacher.

A teacher survey checklist found in Appendix C was used to measure the teachers response to the practicum and mini inservice as per the fourth objective. This checklist was

also designed by the writer. Suggestions were given on how teachers become involved at the initial phase and ultimately incorporate student learning styles into their teaching. The data was analyzed and those teachers that indicated an interest to proceed further began the initial steps toward implementing a learning style inventory for their rooms.

The Parents Participation Checklist (see Appendix D) created by the writer, was used to provide a record of measurement that parents were consulted at the beginning of the implementation phase and again at the eighth week of the practicum regarding their child's style of learning and its relationship to the home environment.

CHAPTER IV

SOLUTION STRATEGY

Discussion and Evaluation of Solutions

Classroom teachers lacking diagnostic skills and available resources to identify their student's learning styles was identified as a major problem. They were unaware that their own unique learning styles became their teaching styles.

The literature search suggested a variety of solutions to help integrate learning styles into the schools. In Chapter II, a history of individual differences and styles of learning and when they began to take shape was outlined. Much of the earlier concentration was from the area of psychology.

A review of the history shows that it was not until the late 1950's or early 1960's that educators began to see the impact of psychology on individual differences. Educators were best known for blending psychological concepts with educational methodologies. Butler (1985), a former student of Gregorc and follower of his work, combined her ideas along with Bloom 's (1956) classic work on the levels of thinking. She successfully applied them to the classroom which enables students to increase their academic successes.

Butler's (1985) theory found in "The Styles of Differentiated Instruction," is a guideline which teaches the process of observation. It is a systemized method of observation to use as a diagnostic tool. It is used to observe and subsequently identify an individual's learning style. Applicable to a classroom, teachers using this process, can individualize their teaching to match the individual student's learning style. Gregorc (1982, 1985a) addressed differential learning patterns as mind styles. His instrument, The Style Delineator, written in 1982, was designed for adults and teachers. Although it was rated with high validity, its limitations, according to Jenkins (1990), are that it has not been recently revised nor was it adapted for children. Another instrument, The Learning Styles Inventory Identification Scale, originated by Malcom, Lutz, Gerken, and Hoelthke (1981) concentrates on the behavioral style of learning which helped the teacher understand how behavior correlated with learning. It determined an individual's amount of interpersonal and extrapersonal sources of information, specifically the individual's thoughts, ideas, values, beliefs, and attitudes. This inventory, according to Pratt (1985), was devised more for a behavioral checklist rather than an evaluation of learning style. Kolb (1976) created a learning style inventory which was based on experiential learning theory. The review on this particular instrument in various validity studies was mixed at best (Titus,

Bergandi, & Shryock, 1990). The Myers-Type Indicator (1976) revealed a comprehensive portrait of the learner and the teacher. The strength of this instrument provided evidence of mismatches between teachers and students. Its main weakness was that it has not been updated in several years (Jenkins, 1990). The Oklahoma State Department of Education in Oklahoma City (1983), used the left and right hemispheres of the brain concept to measure tactile, kinesthetic, visual, and auditory learning modalities to help educators understand that students' have different styles of learning. Many schools preferred to administer The Koppitz Emotional Indicators as predictors of kindergarten children's learning since it relates to behavior (Glutting and Nester, 1986). In 1984, McDermott & Bartman studied children's different learning styles. They administered to elementary school students a 16 item inventory which introduced three distinct learning styles that related to student behaviors. There were avoidance, inattentiveness, and overdependence. The Learning Style Profile developed by the National Association of Secondary School Principals (Keefe & Monke, 1990) was, according to Jenkins (1990), best for sixth-through-twelfth graders. Carbo (1987b) used a Reading Style Inventory which she based in part on the Dunn and Dunn model of learning style inventories. Gardner (1986) identified multiple intelligences such as music, spatial, bodily-kinesthetic, interpersonal, intrapersonal, linguistic, and logical-mathematical and suggested that these abilities may develop

independently. There were several other available inventories of various types (Guild & Garger, 1985) in an attempt to offer help for teacher improvement of diagnostic skills and teaching methods. Among some of these ideas were tracking and homogeneous groupings, ungraded and open classrooms, a variety of remedial programs and diagnostic tools, special education requirements under PL 94-142, principles of instruction, thinking and mapping strategies of Madeline Hunter (Goldberg, 1990), team teaching, and currently cooperative learning. All of these programs offered much to education in their own unique approaches. Many of these concepts are now accompanied with their own diagnostic inventories and manuals of instructions.

In summary, there has been a multitudinous interest in the development of methods and inventories fashioned after the conception of individual learning styles currently administered in the schools as solutions to integrating this concept. While there are many inventories being used to measure and identify a particular style of learning, there appears to be difficulties with reliability and validity of one kind or another with all of the instruments and inventories including the Dunn and Dunn inventory the implementer chose to use in this practicum (Stahl, 1988).

Description of Selected Solution

In designing strategies to solve the problem of getting

teachers to teach students according to their individual learning style, a number of ideas were generated, particularly centering around the notion of utilizing an assessment instrument. One possibility was to explore using Gregorc's (1982) Style Delineator instrument, however, it was learned that this inventory could only measure the teachers' learning styles. Another thought was to use Butler's (1985) Styles of Differentiated Instruction. After some research, it was found that to evaluate individual needs it would take several days of training to synthesize her methods. An alternate idea was to use Malcom, Lutz, Gerhen, and Hoelthe's Learning Style Identification Scale Inventory (1981) though after some investigation, it was found to not only be poorly rated but more of a behavioral checklist than an inventory for learning styles (Pratt, 1985). After consultation with Butler (1990) and Jenkins (1990), the most logical solution was to use the work of Dunn, Dunn, & Price (1987).

The writer was able to consider two plans that seemed sound and promising. The first option was to select a classroom of sixth grade regular education students. The second option was to involve a special education resource room. The latter group was multigraded with third through sixth graders which provided an opportunity to use all three of the Dunn, Dunn, & Price (1987) instruments. However, when the writer discovered that the resource room teacher was pregnant and would to be on a maternity-child care leave

after the Christmas recess, the first plan became the only viable choice.

Report of Action Taken

The sixth grade class of regular education students was decided to become the school's targeted classroom. The sixth grade teacher was chosen after consultation with the principal and social worker who had been assigned to the district for several years and knew the teachers well. As an added bonus, there was a student teacher available.

The assessment instrument used was the Learning Style Inventory (Dunn, Dunn, & Price, 1987). The teacher and her student teacher administered the Learning Style Inventory (Dunn, Dunn, & Price, 1987) to all 31 sixth grade students. This self-reporting instrument was available in four different forms: kindergarten thru second, grades three to four, grades five through 12, and in an adult version entitled the Productivity Environment Preference Survey (PEPS). The authors of this instrument described learning styles as having 22 different elements of four basic stimuli affecting a person's ability to absorb and to retain information, values, facts, or concepts.

The four basic stimuli are environmental, emotional, sociological, and physical.

1. Environment (sound, temperature, light, and design)

2. Emotional (motivation, responsibility,

and need for either structure or flexibility).

3. Sociological (learning alone, with peers, with adults and/or in several ways)

4. Physical needs (time of day, intake, and mobility)

For the administering of the instrument to fifth through 12th grades, there were 104 questions given on a Likert Scale. The five possible answers were:

1	=	strongly disagree
2	=	disagree
3	=	unsure
4	=	agree
5	=	strongly agree

The questions were either read independently by the student or the teacher read each question to the students.

The adult or teacher inventory contained 100 questions and was answered using the Likert Rating Scale with five possible answers as shown above.

All versions of the testing required 20-to-40 minutes. There was also a consistency score given which indicated whether there was consistency with each question that may be

similar. The teachers were eager for new information that makes their teaching effective and improves student learning. Dunn, Dunn, and Price (1987) discovered that when the learning styles method was used with school aged children, all of the students regardless of their ages were excited and showed a lot of enthusiasm when they learned the results of their test.

The children were told that this is not a test but an inventory of their feelings to help them find their preferred learning styles and the results would be shared with them by the writer and teacher individually when they return from scoring. The parent was also informed of the results including a copy of the computer printout. Specific suggestions were given to the parents regarding their children's preferred learning styles.

Dunn and Dunn (1987) also produced six VCR tapes titled "Teaching Students Through Their Individual Learning Styles". These tapes provided information on the learning styles and what procedures were needed to teach to their individual learning styles.

The writer provided information on four group teaching methods that were used to teach to learning styles. These four group teaching methods are Circle of Knowledge (a review technique for material already learned), Team Learning (a technique used to introduce new material), Brainstorming (a quick exercise on short answered questions), and Case Study (a technique to learn to analyze

and use inferences on material). The classroom teacher divided her class into six groups comprised of five members each. The groups were made up of a balance of several styles of learning. The group method taught the students how to teach themselves in a cooperative group process (Dunn & Dunn, 1978).

Because of the realities of not being able to control all 22 elements the focus of the teacher was on noise level, motivation, responsibility, persistence, need for structure or flexibility, learning alone with peers, auditory preferences, visual preferences, tactile preferences, kinesthetic, mobility, and parent and/or teacher motivated. This inventory summarized the preferences the student had for learning, not why these preferences exist, nor why skills were or were not present.

The writer enlisted the cooperation of the elementary school's principal, one regular education classroom teacher and her student teacher. The teacher administered Dunn, Dunn & Price's Learning Style Inventory (1987) to all 31 students The writer forward the completed inventories to Lawrence, Kansas for computer scoring. The classroom teacher and her student teacher were given the Productivity Environmental Preference Survey by Dunn, Dunn, & Price, (1987). The writer mailed the inventories to Lawrence, Kansas for computer scoring. The writer then introduced **Learning Style Inventory**, the VCR tapes, and descriptions of the four group teaching methods (Price,

Dunn, & Dunn, 1987) to them acquainting them with the inventory's scope, guidelines, and educational planning.

The writer analyzed the computer print-out and made recommendations for the individual educational planning for each of the 31 students and disclosed to the teacher and her student teacher each student's preferred teaching style that best complemented that student's learning style.

On an individual basis, the writer reviewed with each of the students their own unique learning style and explained the results with each student's parent(s). During this time the writer answered any of the parent's questions, and made suggestions for home adjustments when appropriate.

The main leadership role for the writer was to help keep the classroom teacher and her student teacher on task with the individual learning prescriptions. The writer and teachers needed to be alert to new adjustments in their teaching strategies. The practicum implementer maintained contact with the parents to help them make home environment adjustments as needed, maintained an interest in this concept among the elementary teaching staff, and prepared for the voluntary mini-inservice that was scheduled during the period of implementation.

In summary, the best solution of the problem was to expose and make available to the school the learning style resources. This was accomplished when the classroom became a learning laboratory and the learning styles model was demonstrated and implemented. The volunteer teachers in

the elementary school wanted to learn their own learning and teaching style. This was accomplished when the inventory developed by Dunn, Dunn, and Price (1987) was administered to them. A review of the different inventories found this particular inventory to be sanctioned as the most valid instruments available. Lastly, there was a very inspired and enthusiastic classroom teacher who vowed to never teach any other way ever again.

CHAPTER V

RESULTS, DISCUSSION AND RECOMMENDATIONS

For students to maximize their learning, the practicum's goals were for teachers to understand the concepts of learning styles, become proficient to administer the assessment instruments, and incorporate the learning style into their teaching. This was primarily accomplished by the successful administering of the inventories and incorporating the results into a variety of teaching methods in order to reach several of the children's learning styles as discussed below.

Results

All 31 students were given the Learning Style Inventory (Dunn, Dunn, & Price, 1987) as part of the first objective. Three students were required to retake the inventory a second time because they scored lower than 75% on the consistency score. A consistency score was calculated for individuals based on their responses to questions that are repeated throughout the Inventory. The higher the consistency score, the greater the confidence that can be placed in interpreting the student's responses. One child of the above three children, an "A" student, had to take it a third time. Prior to taking the third inventory it was

observed on the previous inventories that he was a very strong visual learner and a very weak auditory learner. It was advised for him to take the third inventory on his own in a quiet area rather than having it read by the teacher. His consistency scores, in the 60% range previously, became 100%. Each child was given a copy of their own learning style results along with an individual conference by the writer interpreting the results.

The writer maintained notes each week from weekly conferences with the teacher. These included her own questions and comments about children, and how she might present a specific academic plan for the following week. The teacher kept daily notes on the students' work habits, attitudes, and classroom behavior.

It was expected that the classroom teacher would arrange her 31 sixth grade student into six groups leaving one group with five members. This second objective was met completely. It was also expected that the classroom teacher would attempt to teach to each student's individual learning style. The objective was partially met. A large laminated chart containing each child's name and the learning styles of each child was taped to the front chalk board. This provided a handy and readily observable teaching plan per child.

Only 12 teachers of 27 teachers participated in taking their own learning style inventory. The purpose was to expose the teachers to the kind of data they could receive

if their own students took the inventory. The instrument was individually handed to 26 of 27 teachers with an explanation of its purposes and using the writer's own learning style inventory results to show what they would expect. Only one teacher refused to even take the inventory commenting that the results of her inventory would be more to my advantage than hers. By this, she meant that it would benefit my graduate credits more than her own teaching needs. At the time of this activity this teacher had eight potential attention deficit hyperactivity disordered (ADHD) students being evaluated by the writer along with making parental contacts. It was known by the writer that she was very frustrated with the time lag that this whole process required.

The goal of the fourth objective was that 22 of 27 teachers would be present for the mini-inservice. As it turned out the building principal called a staff meeting and scheduled the writer's part at the beginning of the meeting which allowed him 15 minutes to present the material.

The anticipated result of the fifth objective was that each parent would be contacted and they would have a review and interpretation of their child's learning style. Just prior to going into the classroom to procure their child's academic progress report, 27 of the 31 parent(s) were seen at this parent-teacher conference. A large majority of the parents were very interested in the study of their child's results and asked many questions on how they could apply the

results to home. Some were surprised that the best time for their chid to study was in the evening. A copy of the learning styles print-out was given to each parent. The remaining four parents were seen at separate times by the teacher and the learning styles were explained and a copy given to them.

A second parent-teacher conference was held near the end of the practicum and 27 of 31 parent(s) also attended. The same procedures were used at this conference. Each parent was given a copy and if explanations were needed they were given. A few of the parents did not do anything special about the styles of learning in the home environment. The large majority of the parents, however, did take into consideration the learning style of their children and encouraged their implementation, for example, the best time to study, motivation, persistence, responsibility, quiet, sound, mobility, visual, and auditory in the home setting. One parent who did not come to the first conference was surprised about the inventory as her husband had not shared this information with her after he returned home.

Discussion

The positive results of the first objective concerned two of the three parts of the objective. The teacher felt very strongly that work habits had improved among many children. This included the academically talented children as well as the low achieving children. The teacher's

enthusiasm for the program led her to go beyond what was required of her. At the end of the implementation stage she, by her own choosing, individually consulted with each child regarding their own evaluation. Together, among the teacher and students, 27 of 31 students felt there was an improvement in work habits. In addition, the teacher used the same process to evaluate the classroom attitudes. Of 31 students, 26 had either agreed or strongly agreed that their classroom attitudes had improved. They enjoyed their class time and felt it was enjoyable when they were doing their group activities in the classroom. One student in the classroom who had always been a major behavioral problem had considerably improved. It is unknown whether this improvement was is due to medication he may be taking, maturity, or classroom interventions. Improvement of behavior was the final area evaluated. Only 10 of 31 students felt there was an improvement while 18 felt their behavior remained the same.

In contrast to this, the teacher noted that the behavior of certain students became more negative. About two weeks before the Easter vacation break, a few students became disruptive and insolent. The specific negative behaviors were talking without permission, talking back to authority figures, and not getting along with other students. According to the teacher, this behavior is not atypical but rather expected just before long holiday vacations. Not only are the students anxious for the break

but the anticipation mounts for school personnel too.

An unexpected change in this objective was that the students every two to three weeks wanted to change their groups. The teacher allowed changes with much of the direction coming from her. Changing seats in her room was something she always allowed in her classroom over the years. In discussing this with the teacher it was agreed that making these changes every few weeks would be fine. These students would have an opportunity to work together with a variety of different students with diverse levels of learning and varying styles.

A very positive result of this project is the teacher's own personal reaction to teaching by group methods as outlined by Dunn and Dunn (1978). These included the Circle of Knowledge, Team Learning, Brainstorming, and Case Study. Of the four methods Case Study was the most difficult to apply because of its limitations in the courses she teaches. The teacher feels she will always use the group methods regularly in her classrooms. The teacher covered 40 pages of mathematics in ten days and was astonished that in testing their knowledge she only had to give them ten problems instead of 25 problems. Two special education teachers who team teach with her were amazed with the interest and intensity of involvement of the students and speed of the group teaching methods. The University of Michigan sent a group of student teachers to demonstrate group methods of teaching and they were surprised that this

classroom was already involved in this method.

Not being able to teach to all 22 learning styles was a disappointment to the writer. The problems of adjusting lighting, temperature, and variety of work areas was thought of prior to the practicum but no suitable solutions could be found. Four bean bags were purchased by the writer which added to one the teacher already had in the classroom. They were large enough for two students per bag. They were used by the teacher as a positive reinforcement for those students who completed assignments and wanted to read. The time of day for maximum alertness is informational only for the students to know and not something that the teacher can control or impose. The teacher did attempt to encourage those students with strong evening curves to study at these times. Taking in food, chewing gum, etc., during high concentration times was something the teacher could agree on herself but she was worried about how this would effect other classrooms in the building. Controlling noise level in a classroom from quietness to blocking sounds such as music without words would involve buying individual ear phones for eight to ten students. When it was feasible she allowed students who needed quietness during tests to go to the cafeteria. If a student was "strongly parent motivated" this is something that would be needed to be known by the parent. She attempted to reinforce this by praising the student in front of the parent. Mobility of the student was something that was not entirely ruled out by the teacher.

This consisted of a student being allowed to get up and walk around during a test or high concentration times. This depended on which student and if this score was high. The remaining 12 learning style areas were a strong focus of the teacher, particularly visual and auditory learners and how the student seen themselves in the areas of motivation, persistence and responsibility.

Having a negative effect for both the writer and the teacher was not experiencing the use of Contracting Activity Packages, Designing Programmed Instruction Sequences, and Multisensory Instructional Packages to respond to individual learning styles. These packages are endorsed by Dunn and Dunn (1978) and may be purchased by grade level and area of interest or with some creativity can be made by hand. The Contract Activity Package is an individualized plan that facilitates learning through a multisensory resource and can touch upon only specific topics. Instructional Package material that can be used to learn in small simple steps without direct supervision. The Multisensory Packages are individualized plans that are good for several different levels of teaching.

This classroom teacher is very creative and already had similar teaching aids such as a 12 by 5 foot skeleton to aid in health and science. She used this for those who needed visual and kinesthetic learning styles. However, because of the element of time and lack of any funds those described above could not be made available. They would have done a

great deal to aid in teaching to learning styles. In teaching to the individual styles she attempted to wind and weave comments during group teaching such as "David, Judy, and Tim, I am writing this part of the assignment on the board". For the auditory learners she would give the assignment verbally. For those that had no strong preference these two methods satisfied. She encouraged those students who had high motivation and responsibility but low persistence to work on this trait while in the groups.

A negative but expected result was the writer's lack of teaching training and experience. The writer was a school social worker with experience in evaluating children and providing consultation to teachers on children's behavior. The teacher asked for observations from the writer of her teaching methods and classroom several more times than what the writer's time would allow. She had also taken the adult version of the learning/teaching styles inventory, and not to her surprise, found she is a person who needed structure and direction by a figure such as a master teacher. These needs to some degree were certainly not met by the writer who does not hold a teaching certificate.

Regarding the third objective an important question is why would only 12 of 27 teachers return their inventory for scoring but that five of five teacher assistants, five of five kitchen cooks, and two of two student teachers all would return their inventories. There could be many reasons

why more teachers would not return their inventories. The most obvious reasons could be that some were simply too busy with their daily tasks, some were more disorganized as a normal routine, and some may not have returned their inventories because of the antagonisms and dissension currently taking place among the lower and upper elementary teachers and the building principal. Another reason as pointed out by Dunn and Dunn (1975) Gregorc (1985) and Jenkins (1990) is that some teachers were personally threatened by this kind of activity. No matter how the inventories were presented these individuals felt that their sacred grounds in the classroom were being invaded and observed. Of the 12 teachers, the results were personally explained to eight. The remaining four teachers did not follow through on the writer's invitation if they had any questions about the results. The eight teachers who had the results explained either wanted interpretation when it was handed to them or sought the writer out at another time.

During the mini-inservice (fourth objective) some teachers asked questions. Two teachers abruptly stated the group methods were just another form of cooperative learning and left it at that. Of the 22 teachers given the survey checklist (see Appendix C) only 15 teachers returned them. Some of the surveys returned were not completed. Although it was optional to sign the survey only four signed their names. The most frequent answer circled on all four questions in the survey was "uncertain". Six teachers

agreed that their interest in learning styles as an education strategy has increased. Only five teachers felt that their knowledge in learning styles has increased. However, ten teachers felt that they could see benefits in using learning styles for their students. As stated earlier in the literature review in Chapter II teachers seem to need specific quidelines on how to improve teaching methodologies (Jarrell, 1989; Oakes, 1989; Flanden and Klinzing, 1990). Only four teachers wished for more information on learning styles.

As an unexpected result in the fifth objective one set of parents appeared to be the only parents who were to some degree annoyed by the study. This happened to be the President of the Board of Education. They asked many questions about the inventory's validity and its reliability. Following the conference the teacher stated that the Board President was the only parent who sounded upset. She suspected that he had not been informed by the building principal who was not concerned and indicated at the end of the project that he had not heard anything negative. When they were seen again at the second parent-teacher conference near the end of the practicum they were very friendly and commented that their daughter liked the group teaching that was an outgrowth of the study.

Another unexpected result but very positive was a parent who had identical twins. One twin was in another classroom. Because they were identical they were in a study

for identical twins in a medical facility in California. She requested her daughter in the other classroom be given the inventory so she could send the results to California. This mother also happens to be a School Board Member of this District and showed much interest in Learning Styles. She asked many questions of the writer at both conferences. It is felt that she may have had an influence on the President of the Board between the two parent-teacher conferences.

Recommendations

If this practicum were replicated educational packages described above should be made available. They would enhance the concept of individualized teaching to learning styles. A grant to a funding foundation could provide the money to buy such needed teaching aids.

When student's take the learning styles inventory they should be given an option whether they want the questions read to them or whether they wish to read the questions independently. If an individual is a visional learner and not an auditory learner it could be a real struggle to respond accurately.

Fewer students in a classroom might be helpful in providing the space desired to accommodate areas needed to carry out this particular program.

Dissemination

Specific information has been made available to four teachers in the school district regarding a variety

of different learning style programs available.

A copy of this practicum will be made available to all doctoral students of Cluster 35.

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APPENDIX A

STUDENT EVALUATION CHECKLIST FROM THE TEACHER'S OBSERVATIONS

STUDENT EVALUATION CHECKLIST FROM TEACHER OBSERVATIONS

Date _____Name of Student_____

Circle the number that best describes your response to the statement.

a. The student's work habits and study skills have improved.

1. strongly disagree
2. disagree
3. uncertain
4. agree
5. strongly agree

b. The student's attitude toward learning has improved.

1. strongly disagree
2. disagree
3. uncertain
4. agree
5. strongly agree

c. The student's classroom behavior has improved.

1. strongly disagree
2. disagree
3. uncertain
4. agree
5. strongly agree

APPENDIX B

WRITER'S CLASSROOM OBSERVATION CHECKLIST

WRITER'S CLASSROOM OBSERVATION CHECKLIST

There will be eight observations during the implementation phase.

a. Is the classroom arranged in six groups?

Yes _____

No _____

b. Does the teacher use the four group teaching methods?

Yes _____

No _____

APPENDIX C

POST IN-SERVICE TEACHER'S CHECKLIST

Teacher Survey

Date_____

Circle the number that best describes your response to the statement.

a. My interest in learning styles as an education strategy has increased.

1. strongly disagree
2. disagree
3. uncertain
4. agree
5. strongly agree

b. My knowledge about learning styles has increased.

1. strongly disagree
2. disagree
3. uncertain
4. agree
5. strongly agree

c. In using the learning style concepts in my teaching, I can see benefits for my students.

1. strongly disagree
2. disagree
3. uncertain
4. agree
5. strongly agree

d. I want to pursue this concept further and wish more information on using learning styles in my classroom.

1. strongly disagree
2. disagree
3. uncertain
4. agree
5. strongly agree

APPENDIX D

PARENTS PARTICIPATION CHECKLIST

PARENTS PARTICIPATION CHECKLIST

The parents will receive a copy of their child's learning style inventory results and explanations of their meanings. The parents will also be recontacted during the first eight weeks of the implementation phase to evaluate the home environment outcomes.

a. The parents were all given a copy of the inventory results with explanations and directions to home use.

Yes _____

No _____

b. The parents were all recontacted during the first eight weeks of the implementation phase evaluating the outcomes and providing further direction as needed.

Yes _____

No _____